

CLAIMS

What is claimed is:

5 1. A method of communicating comprising the steps of
 transmitting from a base station, during a DECT base
station time slot of a time frame, a first spread spectrum signal
to a user station;

10 receiving said first spread spectrum signal at said
user station;

15 transmitting from said user station, during a DECT
mobile station time slot of said time frame, a second spread
spectrum signal to said base station; and

20 receiving said second spread spectrum signal at said
base station.

25 2. The method of claim 1 wherein said DECT base
station time slot and said DECT mobile station time slot are in
the same DECT time frame.

30 3. The method of claim 2 wherein said first spread
spectrum signal is transmitted during a base station portion of
said time frame and wherein said second spread spectrum signal is
received in a mobile station portion of said time frame, said
25 method further comprising the steps of

transmitting a first plurality of signals from said base station to a plurality of user stations during said base station portion, one in each of a plurality of base station time slots;

5 receiving said first plurality of signals at said user stations;

transmitting a second plurality of signals from said user stations to said base station; and

10 receiving said second plurality of signals during said mobile station portion, one in each of plurality of user time slots.

15 4. The method of claim 1 wherein said step of transmitting said first spread spectrum signal and said step of transmitting said second spread spectrum signal each comprises the step of transmitting one data symbol for each one of a plurality of spread spectrum symbol codes.

20 5. The method of claim 1 wherein each of said spread spectrum symbol codes is no more than 32 chips in length.

25 6. The method of claim 1 further comprising the steps of transmitting, simultaneously with said steps of transmitting said first spread spectrum code, a first narrowband signal to a second user station during said DECT base station time slot, and

transmitting, simultaneously with said step of transmitting said
second spread spectrum code, a second narrowband signal from said
second user station during said DECT user station time slot, said
first narrowband signal having a first bandwidth lying within the
5 bandwidth of said first spread spectrum signal, and said second
narrowband signal having a second bandwidth lying within the
bandwidth of said second spread spectrum signal.

10 7. The method of claim 1 wherein said first spread
spectrum signal and said second spread spectrum signal are each
wider than 1.728 Megahertz in bandwidth.

15 8. A method comprising the steps of
receiving a data stream in a DECT format;
encoding said data stream in a spread spectrum format
and generating a spread spectrum signal thereby;
transmitting said spread spectrum signal during a DECT
time slot;
receiving said spread spectrum signal;
20 correlating said received spread spectrum signal to
recover said data stream.

25 9. The method of claim 8
wherein said data stream comprises a plurality of data
symbols;

wherein said step of encoding said data stream
comprises the step of encoding said data symbols; and

wherein said step of correlating said received spread
spectrum signal comprises the step of synchronizing to said
5 received spread spectrum signal after receiving less than two
encoded data symbols.

10. The method of claim 8 wherein said step of
encoding said data stream comprises the step of selecting one of
1 a plurality of spread spectrum symbol codes for each predefined
portion of said data stream.

11. The method of claim 8 further comprising the step
of transmitting a narrowband signal during said DECT time slot,
1 said narrowband signal contained within the same bandwidth as
said spread spectrum signal.

12. The method of claim 8 wherein said spread spectrum
signal has a bandwidth exceeding 1.728 Megahertz.

13. A communication system comprising:

a series of time frames for communication between a
base station and a plurality of user stations, each of said time
frames comprising a base station portion and a user station
25 portion;

a plurality of base station time slots in said base station portion, during each of which said base station may transmit a base-to-user signal to one of said user stations; and

5 a plurality of user station time slots in said user station portion, during each of which one of said user stations may transmit a user-to-base signal to said base station;

wherein at least one of said user station communicates with said base station with spread spectrum transmissions overlaying a narrowband transmission in a time slot used by said at least one user station.

10 14. The communication system of claim 13 wherein each of said time frames is about 10 milliseconds in duration, and each of said base station time slots and each of said user station time slots is about 416.7 microseconds in duration.

15 15. The communication system of claim 13 wherein said base station, in response to spread spectrum transmissions received from said at least one user station, converts data
20 information received from said at least one user station into a DECT format.

16. The communication system of claim 13 wherein said at least one user station, in response to spread spectrum

transmissions received from said base station, converts data information received from said base station into a DECT format.

17. A communication system comprising:

5 a series of time frames for communication between a base station and a plurality of user stations, each of said time frames comprising a base station portion and a user station portion;

10 a plurality of base station time slots in said base station portion, during each of which said base station may transmit a base-to-user signal to one of said user stations; and

15 a plurality of user station time slots in said user station portion, during each of which one of said user stations may transmit a user-to-base signal to said base station;

20 wherein a subset of said plurality of user stations communicate with said base station in a time slot by sending and receiving code division multiplexed transmissions.

25 18. The communication system of claim 17 wherein each of said time frames is about 10 milliseconds in duration, and each of said base station time slots and each of said user station time slots is about 416.7 microseconds in duration.

25 19. The communication system of claim 17 wherein said base station, in response to spread spectrum transmissions

received from a first one of said subset of user stations,
converts data information received from said one user station
into a DECT format.

5 20. The communication system of claim 17 wherein one
of said subset of user stations, in response to spread spectrum
transmissions received from said base station, converts data
information received from said base station into a DECT format.

10 21. A communication system comprising:
a base station;
a plurality of frequency channels;
a plurality of user stations communicating with said
base station over said frequency channels using time division
multiplexing, whereby said base station transmits a packet to
each of said user stations in a first portion of a time frame and
receives a packet from each of said user stations in a second
portion of said time frame, said first portion of said time frame
divided into a plurality of base station time slots and said
20 second portion of said time frame divided into a plurality of
user station time slots;

means in said base station for spread spectrum
transmitting to a first user station 388 data bits in one of said
base station time slots;

a first spread spectrum receiver in said first user
station;

means in said first user station for spread spectrum
transmitting to said base station 388 data bits in one of said
5 user station time slots;

a second spread spectrum receiver in said base station.

22. The communication system of claim 21 wherein each
of said base station time slots and each of said user station
time slots is about 416.7 microseconds in duration.

23. The communication system of claim 22 wherein said
time frame is about 10 milliseconds in duration.

24. The communication system of claim 21 wherein said
base station and said first user station each comprise an M-ary
spread spectrum transmitter.